

Original Article

Women's Life History Attributes are Associated with Preferences in Mating Relationships

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Abstract: Life history theory (LHT) is a powerful framework for examining relationship choices and other behavioral strategies which integrates evolutionary, ecological, and socio-developmental perspectives. We examine the relationship between psychological and behavioral indicators of women's life history attributes and hypothetical relationship choices with characters representing short-term and long-term male sexual strategies. We demonstrate that psychological indicators of women's life history strategies are related to predicted and actual behaviors in mating relationships. Women with insecure attachment styles, especially those with negative evaluations of both themselves and others (fearful attachment), were more likely to consider men with attributes indicating short-term mating strategies for short-term and long-term relationships than women with a secure attachment style. Women with relatively unrestricted sociosexuality were more likely to predict they would have sexual affairs with men in general, with the tendency being generally stronger when considering men with attributes indicating short-term mating strategies. Those who scored high on self-monitoring were also more likely to predict having sexual affairs and short-term relationships with these men. These and other findings demonstrate the usefulness of a life history approach for understanding women's relationship choices.

Keywords: Life history, mating strategies, evolution, individual differences

Introduction

The psychological study of mating relationships is enhanced by the integration of a life history framework. Life history theory (LHT) is the study of life cycles and life history traits in an ecological context (Chisholm, 1999), integrating evolutionary, ecological, and socio-developmental perspectives in the study of sex differences in developmental patterns (Geary, 2002). Our study indicates the correspondence of psychological indicators of

women's life history attributes with hypothetical and actual behaviors in mating relationships.

The human pair bond is unusual for a mammalian species; the majority of mammalian males pursue solely short-term liaisons without paternal investment because it is advantageous for them to invest exclusively in mating effort (Clutton-Brock, 1989; Daly and Wilson, 1978; Trivers, 1972). Despite the large number of potential alternative mates, both men and women generally allocate a considerable amount of reproductive effort to parenting. This may occur because human infants and children require considerably more care than those of our primate relatives (Fisher, 1992); children who grow up without a father suffer higher mortality rates, especially in pre-industrial societies (Geary, 1998; Hill and Hurtado, 1994). It may be in women's interests to pursue primarily long-term relationships that allow such investments.

Numerous studies show that women are attracted to men who are socially respected, financially stable, older, wealthy, ambitious, industrious, dependable, emotionally stable, and romantic (e.g., Ardener, Ardener, and Warmington, 1960; Buss, 1989, 1994; Feingold, 1992; Kenrick and Simpson, 1997; Townsend, 1987, 1989; Townsend and Roberts, 1993; Wiederman and Allgeier, 1992), attributes that suggest the potential for long-term investment in a relationship and offspring (Buss, 1994). Although women may prefer these traits in potential fathers, not all men possess these attributes. Men reliably show a clear desire for sexual variety (Buss, 1994; Schmitt et al., 2003), and seek more mates for sexual relations than women (Buss and Schmitt, 1993).

Male reproductive success benefits from short-term sexual relationships because even a brief sexual tryst may increase the number of a man's descendents. The male bias of mating effort over paternal investment leads males to be less selective about particular features of females than vice versa. In humans, women make greater pre- and post-natal contributions of resources (Fisher, 1992); the mother provides the cytoplasm, pregnancy, breast milk, and the majority of care for small children. Women became increasingly more burdened by child care as humans' span of development elongated. Across species, male reproductive success varies more than that of females (e.g., Hall and DeVore, 1965; Jacobs, 1955; LeBoeuf and Peterson, 1969; Savage, 1961). Males can have many offspring via multiple females; however females are limited to having one pregnancy at a time. Thus, women are more selective about partners for sexual relationships than men in response to their significantly lower reproductive ceiling (Trivers, 1972).

However, despite the dramatic sex differences in the costs and benefits of short-term mating, women still seek short-term mates. Why should a woman mate with a man who is unlikely to help her in bearing and raising their offspring? Fisher (1930) proposed that women's offspring would benefit from men who could provide high-quality genes promoting health, attractiveness to the opposite sex, and ultimately reproductive success. The related "sexy son hypothesis" predicts that women have evolved tendencies to prefer men with phenotypic indicators of high genetic quality to those with cues of high potential paternal investment when obtaining reliable paternal investment is unlikely (e.g., Gangestad and Simpson, 2000).

Women may also have short-term sexual relations with men in exchange for resource provisioning, especially when they are caring for children and in need of investment (Lancaster, 1989; Wyatt, Forge, and Guthrie, 1998). In the Ache and Bari societies of South America, women have sex with men who are not their social partners,

especially after they become pregnant. This may serve to confuse paternity, as these men become secondary fathers who are socially obligated to protect and invest in the woman's children. As a result, their contributions raise the children's survival rate (Beckerman et al., 1998; Hill and Hurtado, 1996).

However, the majority of women do tend to prefer males who have observable characteristics signaling high levels of genetic fitness for short-term relationships (Kruger, Fisher, and Jobling, 2003; Kruger, 2006). Although long-term partners would also contribute genetic fitness to offspring, these attributes are not nearly as important to women when they are choosing long-term mates (Kruger, et al., 2003; Kruger, 2006). Women express higher expectations for a partner's attractiveness when considering a one-night stand than for a steady dating relationship (Kenrick, Groth, Trost, and Sadalla, 1993). In a study of female law students, not one would consider an attractive man with low socio-economic status for marriage, although some would agree to have sex with him. They always preferred marriage to sex with a high socio-economic status man, whether he was attractive or not (Townsend and Roberts, 1993).

Patricia Draper and her colleagues argue that men have evolved to specialize in either short-term "cad" or long-term "dad" mating strategies (Belsky, Steinberg, and Draper, 1991; Draper and Belsky 1990; Draper and Harpending 1982, 1988). Cads resemble a "sexy son" strategy, attracting women by showing that they are highly competitive, dominant, brave, aggressive, high in risk-taking, and rebellious, and presumably, they will produce sons with similar characteristics. Dads attract women because they are compassionate, kind, romantic, and industrious, demonstrating the ability and willingness to invest in the relationship and parentally invest in potential children. Cross-culturally, cads and dads show distinct clusters of personality traits reflecting attributes women respectively value in men for short-term and long-term relationships (see Draper and Belsky, 1990).

Belsky, et al. (1991) propose that cads and dads follow developmental trajectories triggered by the absence or presence of a father, respectively. They have amassed cross-cultural evidence that men who experienced father absence favor a sexually promiscuous mating strategy, are misogynistic and reluctant to engage in parental investment, and are violent, aggressive, rebellious, high in risk-taking, and at high risk of incarceration. Men who grew up in father-present households are more likely to delay sexual experience, have positive attitudes towards and develop stable pair-bonds with women, have good relations with male peers, and accept authority (Draper and Harpending 1982, 1988; Draper and Belsky 1990).

Bowlby (1969) believed that one's early social experiences make a substantial impact on one's personality and behavior as an adult. Children who feel loved and welcomed by their parents experience "secure attachment;" and those who feel unloved and unwelcomed experience one of the forms of "insecure attachment." He formed his theories, in part, from observations that early and impulsive displays of sexual and aggressive behavior were most prevalent in individuals who had experienced disturbed family relations (Chisholm, 1999). More recently, Belsky, Steinberg, and Draper (1991) have proposed that the attachment process is an evolved psychological mechanism to evaluate life conditions and choose an appropriate reproductive strategy in one's environment. Thus, insecure attachment is a response to environmental cues that long-term monogamous relationships are not a viable strategy in the social world in which the child is growing up.

In a stressful or hazardous environment, one's early childhood is more likely to be characterized by psychological stress, due to the lessened abilities or attention of parents, leading to insecure attachment styles and short-term mating strategies.

This theory explains empirical findings that women who grow up in father-absent households, a major risk factor for insecure attachment, show earlier sexual activity, as well as a lack of interest or ability to form and/or maintain, long-term monogamous relationships (Belsky, Steinberg, and Draper 1991, Chisholm, 1999). Women who have a warm relationship with their fathers as children and have a father who is highly invested in the family reach menarche later than those with an emotionally distant or absent father (Ellis, McFadyen-Ketchum, Dodge, Pettit, and Bates, 1999). A chronically risky and uncertain environment, as well as family conflict, is associated with earlier menarche, earlier ages of reproduction, and higher reproductive rates (Chisholm, 1999; Kim, Smith, and Palermi, 1997). Note that earlier menarche is also associated with better nutrition (Haq, 1984).

Some portion of life history strategy may be heritable because twin studies indicated that genes typically account for 50% of the variance in most personality traits (e.g., Jang, McCrae, Angleitner, Riemann, and Livesley, 1998). Researchers have identified a complex interaction between genetic variation and environmental conditions and conclude that behavioral tendencies are contingent on both components (Hill, Ross, and Low, 1997). The Belsky, Steinberg, and Draper (1991) model has been challenged with the argument that heritable socio-sexuality accounts for the relationship between father absence and early sexual activity in daughters. Some have suggested that one mechanism is heritable variation in the X-linked androgen receptor gene (AR), which determines sensitivity to testosterone. Gottlieb, Beitel, Lumbroso, Pinsky and Trifiro, (1999) reported nearly 400 AR gene mutations. One study tested whether the relationship between parental separation and reproductive pattern was mediated through variation in the AR gene. Although relationship patterns were partially due to heritability, this did not completely account for the effects of father absence (Comings, Muhleman, Johnson, and MacMurray, 2002). Also, the connection between parental separation and reproductive development was found independently of socioeconomic status and mothers' reproductive behavior (Quinlan, 2003).

Securely attached adults are more likely to describe their major adult romantic relationships as happy, friendly, and trusting, and to have fewer and longer lasting relationships than those who are insecurely attached (Hazan and Shaver, 1987). Unmarried university students who were insecurely attached had significantly more negative expectations of their parenting abilities and about children (Rholes et al. 1997). These predictions may be accurate, as attachment style does indeed appear to affect parenting effectiveness. For example, women who report a divorce, death, or long-term separation in their families are more likely to be teenage mothers, and to talk, look, and touch their babies significantly less than other mothers (Hall, Pawlby, and Wolkind 1979), thus setting the stage for insecure attachment in their own offspring.

Additional psychological constructs may be related to life history. Sociosexuality is defined as an individual's perception of the requirements in terms of time, attachment, and commitment for having a sexual relationship (Gangestad and Simpson, 1990). Females with restrictive sociosexuality have higher requirements than unrestricted females, and are more likely to enhance their reproductive success by obtaining paternal investment.

Unrestrictive females are more likely to follow the “sexy son” strategy, and their offspring may benefit through the quality of their mate's genes. Gangestad and Simpson (1992) demonstrated that restrictive females value personal and parenting qualities more so than attractiveness and social visibility, whereas the reverse pattern was true for unrestricted females.

Self-monitoring may also be related to mating strategies (Snyder and Gangestad, 1986). High self-monitors regulate their self-presentation in the hope of radiating the desired social appearance, low self-monitors express inner states at the expense of presentation. Individuals with high self-monitoring tend to not establish committed relationships and maintain an unrestrictive sexual orientation (Snyder and Simpson, 1984; Snyder, Simpson, and Gangestad, 1986). Those with low self-monitoring tend to establish committed relationships and maintain a restrictive sexual orientation.

Life history theory predicts that individuals who develop in relatively more uncertain environments will develop riskier, short-term, behavioral strategies than individuals who develop in stable surroundings (Chisholm 1999; Roff 1992; Stearns 1992). In these environments, the most pressing adaptive problem faced by individuals may be avoiding death. When mortality rates are low and predictable, there are fewer urgent adaptive problems and a less risky, long-term strategy is optimal. Psychological measures of time perspective may tap into these features of life history. Zimbardo and Boyd (1999) have constructed scales to measure five factors of an individual's time perspective, which they consider a pervasive, powerful, and largely unrecognized influence on human behavior. Zimbardo and Boyd (1999) found that sensation seeking was correlated with present-hedonic orientation (hedonism and risk taking) and inversely related to future orientation (striving for future goals and rewards, rather than immediate gratification). Consideration for future consequences mirrored future orientation, and was inversely related to present-hedonistic orientation.

We have recently developed an additional psychological instrument that may be useful in examining women's life history strategies (Kruger, Fisher, and Jobling, 2003), based on the correspondence between the personality traits of proper and dark (or Byronic or Romantic) heroes of late 18th and early 19th century British Romantic literature and the attributes of dad and cad mating strategies. Proper heroes exemplify long-term mating strategies with reliable paternal investment in offspring; these men are typically law-abiding, compassionate, kind, and monogamous. Dark heroes maximize their reproductive success by having many short-term relationships without parental investment; these characters are socially dominant, rebellious, frequently criminals (although often justified by a tyrannical government), and often promiscuous. We found that women's tendencies to choose dark hero cads over proper hero dads for a hypothetical relationship increased as the relationship length decreased, following the type of investment (parental vs. genetic) valued in each type of relationship (Kruger, Fisher, and Jobling, 2003).

We currently predict that women with insecure attachment styles, suggesting an unreliable developmental environment and the consequential tendency towards short-term mating strategies, will have a stronger tendency to form relationships with cads. They may follow a strategy designed to maximize their immediate reproductive success by obtaining high quality genes for offspring, rather than deferring their sexual involvement until they are relatively certain of extended paternal investment in a long-term relationship.

Moreover, we predict that the likelihood of engaging in brief sexual relationships with dads and cads will be elevated for women with unrestricted sociosexuality, and that these women will be more likely to consider short-term and long-term relationships with cads. Simpson and Gangestad (1991) found that women with a reported history of relatively unrestricted sexual relations were more prone to care about a partner's sexual appeal and attractiveness, and less about personality in terms of kindness, understanding, beliefs and faithfulness. Women who score higher in self-monitoring are also expected to follow this pattern.

We further predict that women whose time perspectives encourage short-term mating strategies, those high in present hedonism, will be more likely to predict having relationships with cads. Those high in future orientation will exhibit the reverse pattern. Women who reached menarche earlier, one indicator of environmental uncertainty accompanied by less reliable social and familial support, should also have a greater tendency to choose cads for relationships. Finally, we predict that women who score higher on indicators reflecting short-term life-history strategies will exhibit behaviors reflecting these strategies: they will on average report having more short-term relationships, more partners in the last year, more one time partners, and a greater propensity to cheat on their primary partners than those women whose scores suggest longer-term strategies.

Materials and Methods

Ethnically diverse (61% indicated some non-Western European ancestry) female undergraduates ($N = 291$; M age = 18.91, SD age = 1.18) at a large Midwestern-American university participated to fulfill a course requirement. Participants completed surveys at their convenience over the Internet, which included the Experiences in Close Relationships (ECR) inventory (Brennan, Clark, and Shaver, 1998) to assess attachment style, the Future Orientation and Present-Hedonistic scales from the Zimbardo Time Perspective Inventory (Zimbardo and Boyd, 1999), items measuring socio-sexuality (Simpson and Gangestad, 1991), self-monitoring (Snyder and Gangestad, 1986), and a hypothetical version of an experiment asking how likely participants would be to have sex with an attractive stranger (Clark and Hatfield, 1989). Participants indicated the age at which they reached menarche and the number of times they have cheated on their partners. Participants read descriptive passages (200-300 words) of a prototypical proper hero dad, from *Waverley* (1814) by Walter Scott, and a prototypical dark hero cad, George Staunton from *The Heart of Midlothian* (1818) also by Walter Scott. Vocabulary keys defining several archaic or arcane words or phrases were included for each passage.

Participants rated how likely they would be to have long-term committed, short-term, and brief sexual relationships with each character. We correlated scores on life history indicators with hypothetical relationship choices and behaviors in actual relationships. We assigned participants to one of Bartholomew and Horowitz's (1991) attachment style categories with computations from the Experiences in Close Relationships (ECR) scale (See Brennan, Clark, and Shaver, 1998) and conducted an Analysis of Variance (ANOVA) on the likelihood of relationships with the cad. These attachment style categories are based on the positivity or negativity of scores from two dimensions: evaluation of the self and evaluation of others as accepting and responsive. The categories

are secure (positive self, positive others), preoccupied (negative self, negative others), dismissing (positive self, negative others), and fearful (negative self, negative others).

Results

Women who scored higher on ECR-avoidance were most likely to say they would have short-term and long-term committed relationships with the cad (See Table 1). Women who scored higher on ECR-anxiety were most likely to say they would have a: brief sexual affair with the dad, brief sexual affair with the cad, short-term relationship with a cad, and a long-term committed relationship with a cad. Women who differed in attachment styles significantly differed in their estimated likelihood of having a short-term relationship with a cad, $F(3,285) = 2.806, p = .040$; and in their estimated likelihood of a long-term committed relationship with a cad, $F(3,285) = 4.712, p = .003$ (See Figure 1).

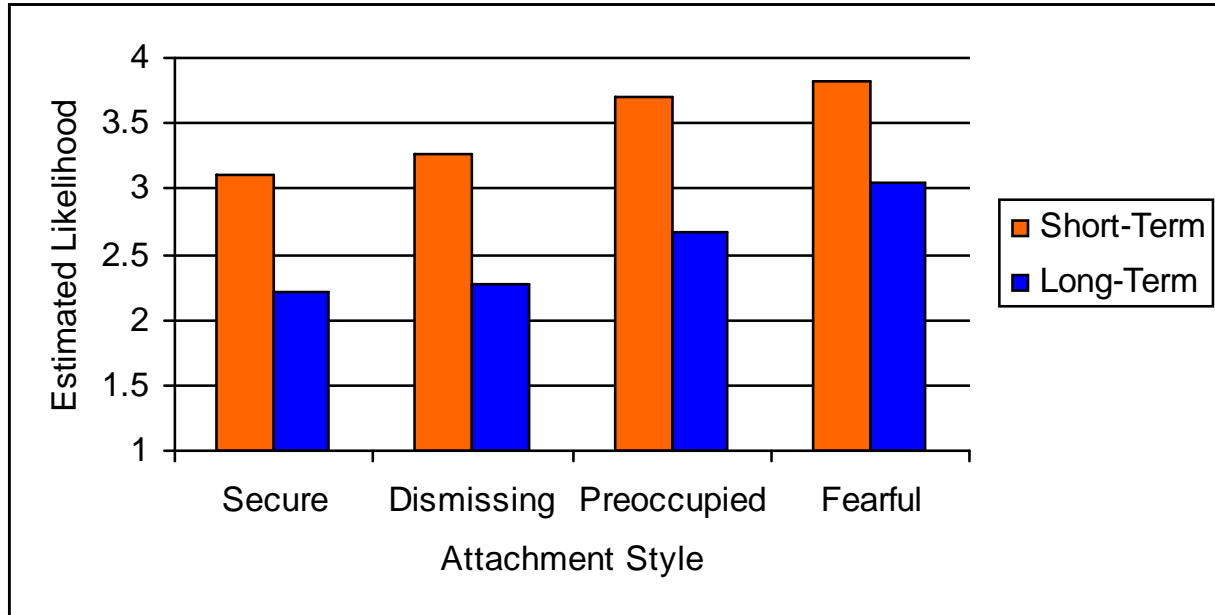
Table 1. Life history indicators and relationship ratings of relationship likelihood

	Relationship with Dad		Relationship with Cad		
	Sex	Short-term	Sex	Short-term	Long-term
Attachment: Avoidance	n.s.	n.s.	n.s.	.121*	.132*
Attachment: Anxiety	.150*	n.s.	.169**	.162**	.158**
Socio-sexuality attitudes	.324***	.166**	.435***	.234***	.124*
Self-monitoring	n.s.	n.s.	.184**	.178**	n.s.
Present Hedonistic	.159*	n.s.	.179**	n.s.	n.s.
Future	n.s.	n.s.	-.151*	n.s.	n.s.
Desired partners in 5 years	.285***	n.s.	.321***	.195***	.161**
EPC fantasies	.262***	.262***	.325***	.179**	.126*

Note: * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$

Participants' socio-sexuality scores were positively correlated with their stated likelihoods of having sexual affairs with dads, and sexual affairs, short-term relationships, and long-term committed relationships with cads. Scores were also correlated with estimated likelihoods of short-term relationships with dads, but not long-term committed relationships with dads (see Table 1). The participants' numbers of sex partners in the past 12 months, numbers of one-time sex partners, and number of partners that participants desired to have in the next five years were all positively correlated with their stated likelihoods of having sexual affairs with dads, and sexual affairs, short-term, and long-term relationships with cads (See Table 2).

Figure 1. Mean estimated likelihoods of having a short-term and long-term committed relationships with the cad by attachment style.



The frequency with which participants currently in relationships fantasized cheating on their partners correlated positively with their stated likelihoods of having sexual affairs with both dads and cads. Lastly, the number of times that participants have cheated on their partners was positively correlated with their stated likelihoods of having sexual affairs with dads, as well as sexual affairs, short-term, and long-term relationships with cads.

Table 2. Correlations between relationship likelihood ratings and relationship behaviors

	Relationship with Dad		Relationship with Cad		
	Sex	Short-term	Sex	Short-term	Long-term
Short-term partners	n.s.	n.s.	.186**	.157*	n.s.
Partners in last 12 months	.243***	n.s.	.245***	.169**	.148*
One time partners	.245***	n.s.	.184**	.126*	.146*
Times cheating	.208***	n.s.	.169**	.120*	.133*

Note: * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$

Women who scored higher on self-monitoring were more likely to say they would have a sexual affair and a short-term relationship with the cad (see Table 2). Women who reported a greater likelihood of having sex with an attractive stranger were more likely to say they would have a sexual affair with the dad, a sexual affair with the cad, and a short-term relationship with the cad. Participants scoring high on the present hedonistic dimension perceived sexual affairs with the dad and the cad as more likely to occur (see

Table 3). The tendency for women scoring high on future orientation to perceive sexual affairs with the cad as less likely approached but did not reach statistical significance, $r(169) = -.145$, $p = .060$. Women who reached menarche earlier were more likely to say they would have a sexual affair with a cad, $r(286) = .127$, $p = .031$.

Table 3. Correlations between LHT indicators and behavioral attributes of socio-sexuality

	Long-term relationships	Short-term relationships	Partners in last 12 months	One time partners	Times cheating
Attachment: Avoidance	-.228***	n.s.	n.s.	n.s.	n.s.
Attachment: Anxiety	n.s.	n.s.	.117*	.125*	n.s.
Socio-sexuality attitudes	.191**	n.s.	.424***	.309***	.283***
Self-monitoring	.200***	.256***	n.s.	n.s.	n.s.
Present Hedonistic	.230***	.195**	.225***	.146*	.158*
Future	n.s.	n.s.	n.s.	n.s.	n.s.

Note: * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$

Avoidance scores (indicating insecure attachment) were inversely associated with the number of long-term relationships participants have formed (See Table 3). Anxiety scores (indicating insecure attachment) were positively associated with the number of partners in the past 12 months, as well as participants' number of one-time partners. Those who scored higher in sociosexuality had more long-term partners, more partners in the past 12 months, more one-time partners, and cheated on their partners more often than those who scored lower. Higher scores on self-monitoring were associated with having more long-term and short-term partners. Higher degrees of present hedonism were associated with having more long-term and short-term partners, more partners in the past 12 months, more one-time partners, and greater incidence of cheating behaviors. Future time perspective was not associated with any of the behavioral measures.

Discussion

Our results indicate the value of a life history framework for understanding women's mating choices. Women with insecure attachment styles, especially those with negative evaluations of both themselves and others (fearful attachment), were more likely to consider cads for short-term and long-term relationships than women with a secure attachment style. This lends support to the causal framework proposed by Belsky, Steinberg, and Draper (1991), where psychological mechanisms following from unpredictability in one's early social environment promote tendencies towards short-term mating strategies later in life.

Women with relatively unrestricted sociosexuality were more likely than those with restricted sociosexuality to predict sexual affairs with dads and cads, with the tendency being generally stronger for cads. Relatively unrestricted women were also more likely to consider both short-term and long-term relationships with cads, across multiple indicators of sociosexuality. The frequency with which the women had cheated on their partners was

also significantly correlated with the likelihood of sex with the dad and of all types of relationships with the cad. None of these measures were significantly related to the likelihood of a long-term committed relationship with the dad. Also, as predicted by our evolutionary framework, those who scored high on self-monitoring were more likely to predict they would have sexual affairs and short-term relationships with the cad.

The relationship between time perspective and mating preference was not as comprehensive as expected, but all significant relationships were in the predicted direction. Present hedonistic orientation was positively related to the likelihood of brief sexual affairs with both dads and cads. There was an inverse relationship between future orientation and the likelihood of having a brief sexual affair with the cad, but this did not reach significance.

Psychological indicators of life history strategies were also correlated with rates of actual behaviors, such as: the number of short-term and long-term relationships participants have experienced, the number of partners they have had in the past 12 months, the number of one-time partners, and even the frequency of cheating behavior. Although the strength of the findings with the life history indicators may appear small, they are near the mean effect size of social psychological research. Cohen (1988) indicated that a correlation of .30 was a moderate effect in psychological research; Richard, Bond, and Stokes-Zoota (2003) found that the mean effect size for published social psychological research translated into a correlation of $r = .21$. It is likely that stronger effects would be found with a sample more representative of the general population. The socio-economic background and age range of participants attending a highly selective university is probably constricted.

It is notable that women with more unrestricted sociosexuality and shorter time horizons were more likely to predict short-term sexual relations with both the cad and the dad. This suggests that the benefits of resource provisioning may complement the benefits of high quality genes in brief sexual relationships, as both dads and cads may provide material support for the duration of the relationship. Also, the preferences that women express as college students do not necessarily correspond with those possessed by the individual they will choose as a partner for a long-term relationship (See Todd, Penke, Fasolo, and Lenton, 2007). In fact, women attending college may explore their options and take opportunities to have relationships with men who they would not actually consider for marriage.

One may be puzzled by the results concerning longer term relationships with cads. If cads are valuable for their genetic investment, why would women with riskier life history strategies seek them for long-term relationships? The psychological mechanism promoting an adaptive strategy could vary, as long as it reliably leads to the adaptive behaviors. Women may fully intend to have long-term committed relationships with cads, whether or not this actually happens. Modern day mass-market romance novels feature cad like characters who are ultimately tamed into long-term relationships by the female protagonist (Barash and Barash, 2005; Salmon and Symons, 2003). It is not surprising that this "best of both worlds" outcome makes for such popular reading.

Women may also use short-term sexual relationships to assess and demonstrate their competitiveness in the mating marketplace (Townsend, 1999). Although ancestral women did not benefit as much as men did from a high quantity of partners, they may compete with each other for high quality partners. This competition may be especially important in a nominally monogamous society, from which the respondent sample derives.

Our experiment elucidates the usefulness of a life history approach for understanding women's relationship choices. This integrative framework holds the promise of advancing developmental and social psychology, as well as uniting psychology with other fields and levels of analysis. We also demonstrate the usefulness of the dad and cad experimental paradigm for illustrating women's mating strategies.

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